Claims

1. A seal arrangement for reducing the seal gaps within a rotary flow machine, preferably an axial turbomachine,

- having rotor blades and guide vanes, which are respectively arranged in at least one rotor blade row and guide vane row and have respective blade/vane roots (2, 3) which protrude into fastening contours within the rotor blade and guide vane rows,
- the blade/vane roots (2, 3) having a respective platform (7, 8, 21, 31),
- a sealing element (4) in plastically deformable material being provided between at least two platforms (7, 8, 21, 31) of adjacent blade/vane roots (2, 3) along a rotor blade row or guide vane row or between a platform (7, 8, 21, 31) of a blade/vane root (2, 3) of a rotor blade or guide vane and a rotary flow machine component directly adjoining the platform (7, 8, 21, 31).
- the sealing element (4) being firmly connected to one platform (7, 8, 21, 31) at least and having a thickness protruding from the surface of the platform (7, 8, 21, 31),

characterized in that

- the two adjacent platforms (7, 8, 21, 31) or the platform (7, 8, 21, 31) and the component directly adjoining the platform (7, 8, 21, 31) enclose a cold gap s_c in the cold condition and a hot gap s_w in the hot condition during operation of the rotary flow machine.

2. The seal arrangement as claimed in claim 1, characterized in that the connection of the sealing

element (4) to the platform (7, 8, 21, 31) is a brazed/soldered or bonded connection.

3. The seal arrangement as claimed in one of claims 1 and 2, characterized in that

- the sealing element (4) is applied as a layer material to a platform (7, 8, 21, 31) by means of a precipitation process, and
- in that the sealing element (4) and the platform (7, 8, 21, 31) enter into a metallurgical combination.

4. The seal arrangement as claimed in claim 3, characterized in that the sealing element (4) configured as a layer material can be applied by flame spraying, galvanic precipitation or by plating onto the platform (7, 8, 21, 31).

5. The seal arrangement as claimed in one of claims 1 to 4, characterized in that the plastically deformable material (4) is a sintered metal, a metal foam or a porous metallic coating.

6. The seal arrangement as claimed in claim 5, characterized in that the sintered metal is a homogeneously baked combination from NiAl, FeAl or CoAl.

7. The seal arrangement as claimed in claim 5, characterized in that the metal foam is one containing Ni, Co and/or Al.

8. The seal arrangement as claimed in claim 5, characterized in that the porous metallic coating exhibits MCrAlY, where M is a metal from the group consisting of Ni, Co or Fe.

9. The seal arrangement as claimed in one of claims 1 to 8, characterized in that the following applies: $s_w << s_c$.

10. The seal arrangement as claimed in one of claims 1 to 9, characterized in that when a contact pressure present between two platforms (7, 8, 21, 31) or between the platform (7, 8, 21, 31) and the component directly adjoining the platform (7, 8, 21, 31) is exceeded in the hot condition of the rotary flow machine, the sealing element (4) deforms plastically in order to form a minimum hot gap S_w.

11. The seal arrangement as claimed in claim 10, characterized in that the plastic deformation of the sealing element (4) takes place substantially laterally relative to the plane of a seal gap (5, 6) enclosed by both platforms (7, 8, 21, 31) or by the platform (7, 8, 21, 31) and the component directly adjoining the platform (7, 8, 21, 31).

12. The seal arrangement as claimed in one of claims 1 to 11, characterized in that the sealing element (4) has a wedge-shaped configuration and in that the thicker wedge end (42) is oriented to be facing toward the blade/vane aerofoils.

13. The seal arrangement as claimed in one of claims 1 to 11, characterized in that the platforms (7, 8, 21, 31) or the platform (7, 8, 21, 31) and the component directly adjoining the platform (7, 8, 21, 31) have a contour protruding into one another, the sealing element (4) being provided at least on the contour part facing toward the blade/vane aerofoils.

14. The seal arrangement as claimed in one of claims 1 to 13, characterized in that at least one cooling duct (72, 82) is provided which opens from the platform (7, 8, 21, 31) in the region of the sealing element (4).

15. The seal arrangement as claimed in one of claims 1 to 10, characterized in that a sealing protrusion (74) is provided on the platform (7, 8, 21, 31), opposite the sealing element (4).

16. The seal arrangement as claimed in one of claims 1 to 15, characterized in that the component of the rotary flow machine adjoining the platform (7, 8, 21, 31) is an intermediate piece, in the form of a distance piece, or a heat insulation segment.